

WA-Trans Partner Meeting

March 14, 2007

Attendees:

Name:	Organization:
Brian Malley	Benton-Franklin Council of Governments
Steve Rush	U.S. Dept. of Energy
Mary Phillips	Benton County GIS
Michaellyn Garcia	U.S. Bureau of Census
Sam Bardelson	U.S. Geological Survey
John Shambaugh	WSDOT Aviation Division
Kerri Woehler	WSDOT Aviation Division
Kathy O'Shea	County Road Administration Board
Bill Blake	Thurston County
Jordyn Mitchell	WSDOT Office of Information Tech.
Michelle Blake	WSDOT Office of Information Tech.
Holly Glaser	WA-Trans Project
Pat Whittaker	WSDOT Transportation Data Office
Chris Madill	WA Traffic Safety Commission
Matthieu Denuelle	ESRI
Michael Leierer	WA-Trans Project
Tami Griffin	WA-Trans Project

Facilitator: Tami Griffin, WA-Trans Project Manager

Note-taker: Tami Griffin, Holly Glaser

Agenda:

- Introductions
- Status Report - participants, milestones met, communication activities, announcements
- WA-Trans Pilot Status Report
- Steering Committee Activities
- Database Changes
- Agreement Points and Processing
- Portal Prototypes for One-Road Pilot
- WA-Trans Return on Investment
- Questions, Comments, Review, Future Meetings

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Overall Status Report

Participation:

Washington Department of Health,
Thurston County GIS (attended meeting).

The following presentations were given since the last meeting:

- URISA International Conference in Vancouver, B.C. on WA-Trans and collaboration (Tami),
- Washington Association of Public Works Professionals with Cathy Udenberg of Walla Walla County (Tami, Michael, Cathy),
- GITA Conference in San Antonio, TX on Business Case work for WA-Trans (Tami).

Upcoming presentations include:

- Conference-wide panel discussion on One-Road Pilot and TPF Study at the AASHTO GIS-T conference in late March (Tami, Michael),
- WA GIS Conference for WA-URISA on the Business Case as presented at the GITA Conference (Tami),
- Status presentation to the Washington Traffic Records Committee in May (Tami, not certain),
- Geospatial 2007 in Portland, OR on WA-Trans Business Case Study (Tami),
- Washington State County Engineers Summer Conference (tentative) in June (Tami and maybe Michael).

There were comments that the partners want to learn from the WA-Trans experience and the presentations are useful for this.

Funding (right now):

- USGS CAP Grant - complete,
- One-Road - enough funds to complete Phase I. Currently we have four states participating. We need more to continue to Phase II.
- Traffic Records Federal Funding - \$125,000 for One-Road work on data,
- USGS - \$35,000 (tentative for Puget Sound Pilot Phase II),
- Department of Health - up to \$30,000 (tentative for Puget Sound Pilot Phase II).

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WA-Trans Pilot Status Reports

Puget Sound Pilot:

Milestones Met -

- Translator developed for King and Pierce counties to provide data to WA-Trans,
- Translator developed from "staging" database into WA-Trans,
- Implemented the WA-Trans database and tested it with Pierce and King County data,
- Documented the Agreement Points process, which is completed between Pierce and King County (thanks to Mike Berman from King County), It is a great example of a collaborative process.
- Document the transformation processes,
- Lessons learned and final report to the USGS,
- Transformation of WA-Trans data to The National Map.

Puget Sound Pilot Future Work:

- Transformation to The National Map (in process),
- Puget Sound Regional Council is test the combined King/Pierce county dataset (in process); Andy Norton of PSRC is testing pathways across the border.
- Work with Puget Sound Regional Council to document QA/QC processes,
- Begin process to put WSDOT data into WA-Trans, We are developing what WSDOT needs from state-route data in WA-Trans and will take the negotiation to King and Pierce Counties to determine how to move forward.
- Complete King County/Mobility conflation process,
- Develop processes to re-segment King and Pierce County data,
- Work with King and Pierce Counties to develop transformations back out of WA-Trans.
- Develop standards for agreement points data,
- Translate back to King and Pierce Counties,
- Development of data sharing agreements,
- Draft disclaimer; the disclaimer will be presented to all who get WA-Trans data and must be accepted. Each provider organizations disclaimer will also be in the meta data from that provider that is provided to data users.

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- Metadata process (phase I); we are beginning some work on feature level metadata as part of this project.
- Development of maintenance plans.
- Start adding other modes,
- Find funding for Phase II. New funding has been presented on this.

Lessons Learned Overview

Agreement Points:

- Accurate enough boundary that all parties agree to is key, Requires face-to-face work to overcome political and organizational issues,
- Development of solutions for those who don't want to participate needs to be undertaken,
- Let one agency propose points based on agreed to ortho-photos and then the other party and respond,
- All parties need to understand things will move and be prepared to enter into a fair negotiated process,
- Agencies have different business needs which require different data. A flexible structure is required for this,
- Growths of urban areas require regular maintenance. Processes need to be developed regarding this.

Comment: The boundary issue may affect other framework efforts. Technology has driven us beyond what the law was written for. Boundaries created by providers for this purpose must be maintained.

- Database:
 - Collaborative database design is a very iterative process,
 - Use of GUIDs for an all purpose ID has worked well,
 - Creating logical representations with several possible options regarding geometry leads to significant flexibility,
 - We are considering using linear datums to ease management of multiple LRM,
 - Involving Steering Committee and PAC has lead to a better product,
 - Software and platform issues are still problematic,
 - We need to be able to manage several versions of the database and platform software.

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The database is still undergoing change. We have had problems with and ESRI bug regarding the GUID use. The separation of geometry and allowing multiple representations of geometry support flexibility. We have big issues with ArcSDE 9.1 and look forward to testing in 9.2.

Translation and Transformation:

- Transformations require significant resources to develop and we can't rely on data providers to develop their own in most cases,
- Use of an intermediate database design and ability to crosswalk without the WA-Trans unique fields simplifies development of crosswalk for data provider,
- Use of crosswalk was essential and really useful to the data providers,
- The transformation to data users will not be simple. We may have to resort to a few agreed up on output schemas for most users. It will require a significant investment of the users' time to develop and test custom output translators for each user.

It takes about 200 hours per translator developed. We need to determine if we can develop some standard output translators which will work for many possible users.

Maintenance:

- Maintenance:
 - We need to invest significant time on examining how this will work, particularly until we have the infrastructure developed,
 - We can use Pierce County data to develop some plans to facilitate the maintenance processes,
 - How do we import updates?
 - Only bring in changed data,
 - Get a complete set of new data and compare changes and handle only changed data,
 - Retire the old layer and then doing a wholesale load of the new data and store history as we go with this.

The issue is to stay current with the least maintenance effect. Pierce County is setting up to provide updates now. We have this on our schedule to work on as soon as we are able.

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One-Road Pilot:

Milestones:

- Project Charter has been completed.
- Nebraska, Oregon, Ohio and Tennessee DOTs are involved and Kansas and Nevada are interested,
- A Joint Application Development (JAD) Session gathering requirements for the Data Provider Portal and the Data User Portal was held in November in Pendleton, Oregon,
- Non-functioning prototype portals have been developed and are being reviewed for feedback,
- A WA-Trans Staging database has been created to be used for integration and data maintenance research, and we hope to test versioning with version 9.2.

Next Steps:

- Continue to work on the transformation processes and how easily additional software can be interfaced with them,
- Completely specify requirements for the two user interfaces,
- Look at existing software solutions and research,
- Develop Interface Portals,
- Test the results of the software with various pilots,
- Develop Integration and QA/QC requirements,
- We will do as much as we have funding and resources to do.

This pilot has both a software element and a data element.

We want to create a portal which allows an automated process for updating data. The software we are looking at will adapt to what we need and work for us with some customization. We are looking at ESRI and Safe Software solutions right now.

We are working on a contract with Central Washington University in hopes to have them work on conflation, translation and integration with us on this pilot.

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Steering Committee Activities

The next Steering Committee meeting is April 18 in Spokane. The following day will be a One-Road Pilot Advisory Committee meeting in the Tri-cities.

- The committee is following the effort to develop GIS data for Pend Orielle County,
- The WA-Trans Standards have been restructured into three documents:
 - Data Characteristic Standards (document of minimum WA-Trans Attributes required),
 - Metadata Standards (includes minimum metadata requirements and data provider profile information),
 - GIS Data Standards (we will be adding agreement point standards, update submission rules based on portals, updated definitions).
 - The updated standards are on the project website.
- The committee is considering how to handle feature level metadata.
- The committee is asking data providers to insert their disclaimer into their metadata which will be provided to data users.

Ian Von Essen of Spokane County is working with Pend Orielle County and sharing their experiences. We are watching how they are doing this very carefully.

The steering committee has a subcommittee working on an accelerated implementation plan:

- We have created a team to work on a plan and issue document for an accelerated statewide implementation,
- The goal is to use some dataset for all the areas we don't have done and then fill in county by county as we move forward,
- We would do this after we finished Puget Sound Pilot and the One-Road Phase I pilots,
- We need to determine the feasibility and cost of this and have a plan to continue to add counties as we move forward.

When WA-Trans doesn't already have the data we will use census data and conflate CRAB and add WSDOT data for state-routes. Then we will replace it with better data by working with local providers.

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Scope Considerations (decisions made by the Steering Committee):

- We are going to add classification for alleys and driveways so eventually we can handle them in WA-Trans. We need to define them first. (Send us your definitions!)
- We are working on a crosswalk for city codes. It appears that the FIPS code won't work for this,
- We are running into issues of directionality with the linear referencing so we will be adding a directionality indicator (more on this in the database discussion),
- Ultimately we need to handle multiple LRS so we are looking at a linear datum (already implemented in the Oregon Project).

Comments: Counties and states do not use FIPS codes but unique city codes. We have created a crosswalk for this in the Puget Sound Pilot.

We need to add new transportation classifications as needed.

Provider data may not segment like WA-Trans. We will keep provider geometry.

We can:

- Create mileposts and force an LRS
- Related multiple LRS with an LRS datum (looking at what Oregon is doing with this),
- Keep track of the local identifier in more tables,
- Create business tables for transactions.

Database Changes

Newly Implemented:

- The ability to determine directionality of segment data has been implemented in the WA-Trans database.
- The ability to include multiple geometries, for segments, has been enhanced by making changes in the database structure and adding data fields.
- WA-Trans now can include more local data identifiers enhancing the ability to crosswalk back to local data schema and QA/QC processes.

The directionality of a route can now be determined by either the reference points or by the associated addressing schema or both. This was not previously possible. The ability to include multiple geometries enhances the directionality possibilities. We hope to support the need to provide standard and as much as reasonably possible, user-specific data.

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Database Changes to come:

- Structural changes are being designed for the Internet portals, based on the Data Provider and Data User Portal requirements.
- Reference Point Geometry structural changes are being designed to add the same multiple geometry functionality currently available for segment data.
- Processes are being developed to connect the WA-Trans database to WSDOT Enterprise data. This will enhance metadata and data definition processes in WA-Trans.

The Data definitions, Metadata information and attribute information for the Data Provider Internet Portal application are all data that needs periodic maintenance. By connecting to the WSDOT Enterprise Data Catalog, WA-Trans will be able to leverage this information and functionality. It would automatically update documentation using the geodata catalog.

It is important to understand the WA-Trans will not be available as WSDOT private database. WSDOT will use it like any other user.

Agreement Points and Processing

Holly provided some illustrations and a document related to this. Agreement points are used to connect segments from different providers. A detailed document of this is under development from the Puget Sound Pilot. Those documents will be provided when complete. We have completed the first round of agreement points with the Puget Sound Pilot and are developing standards of what the WA-Trans Project needs from data providers in order to provide agreement point related data.

Portal Prototypes for the One-Road Pilot

Michael demonstrated non-working prototypes for data provider portal and the data user portal. The data provider portal is the best defined at this point. Both prototypes have been sent to One-Road PAC members for feedback. The steering committee will also be reviewing them by demonstration in April. They will also be demonstrated in detail to the other states involved in the One-Road pilot.

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Competing business plans and needs between providers (such as planners needing dual carriage-ways and emergency response needs to geo-code) means that data useful for one may be unworkable with another system. We want to provide different versions or options for use.

We need feedback on these from those who have seen the demonstration. It is assumed that for the data providers we will have an existing relationship with data providers prior to them using the portal to provide data.

Data user needs are still being developed. We need feedback. If you wish to test please let us know.

WA-Trans Return on Investment

History:

- GITA Conference in Seattle (training in GIS Business Case),
- Through networking several people with common interests became aware of our need,
- Invited to join the FGDC Business Case Action Team,
- WA-Trans was selected as a case-study participant,
- FGDC (upon suggestion from GITA) agreed to fund a second trip to complete the WA-Trans business case.

The importance of this was there was previously no real documentation on how to do ROI on multi-agency projects. WE are making the case for the value of data other than as an abstract thing that this is a good thing to do.

Data Collection Processes:

- Meeting - asking people to bring information
 - Best results from those we had spoken with about this previously,
- Followed with some individual meetings (generally requires two meetings and maybe three),
- We met with:
 - 5 county governments
 - 1 federal agency
 - 3 planning offices
 - 4 state agencies

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- 1 private company.

The face-to-face meetings were the most productive.

Assumptions (Key Considerations):

- Estimates of original costs are close enough,
- Categorize counties as small, medium and large based on population,
- Utilize Census data on determining how many governments may not have usable data or how much work must be done on existing data,
- When determining what "average" means for calculating benefit we will be conservative,
- Document and validate all assumptions where possible.

Project Costs used in the study (best numbers now):

	Development Costs (4 years)	Maintenance Costs (16 years)
Internal Labor	\$1,492,526	\$2,747,564
Contract / Procurement Costs	\$3,281,920	\$664,001
Total	\$4,774,446	\$3,411,565

Data Results (Benefits):

Productivity Benefits	\$16,471,801
Other Benefits	\$13,048,161
Total Benefits	\$26,065,480

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Average Annual Benefits Breakdown:

Entity	Who provided data	Total Benefits (20 Years)	Annual Average Benefits
Local Governments	King, Walla Walla, Mason, Spokane, Lincoln	\$11,739,274	\$586,964
Regional Average	Puget Sound Regional Council, Sound Transit	\$3,798,903	\$189,945
State Agency Average	WSDOT, WADNR, EOC, WSP, WUTC, CRAB	\$9,620,017	\$481,001
Federal Benefits	Bureau of Census	\$907,280	\$45,364

Business Case Summary:

Total Net Benefits:	\$17,873,385
Annualized Return on Investment:	10.91%
Break Even Point:	2011

When benefits are shared by more than one beneficiary the benefits grow quickly. Missing state agencies include: Dept. of Revenue, Dept. of Social Health Services, Dept. of Health, Dept. of Ecology, Washington State Patrol, and Dept. of Fish & Wildlife.

We anticipate the emergency response ROI is larger than anticipated. We need to create documents for different beneficiaries to show benefits to different groups.

Validation Process:

- Validation with state agencies with major benefits identified has changes the break even date,
- Validation with county government challenges assumptions regarding the number of regional emergencies and the cost of them (they are seen as way too low),
- Pilot projects will cause adjustments to costs estimates and time lines,
- Much more data could (and will) be collected.

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Closing Information:

Next Meeting:

- September 12, 2007
- WSDOT Headquarters, Shamen Room (2F-22)
- 310 Maple Park Ave SE
- Olympia, WA

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